the characteristic of the equalizer circuit such that equalizer settings are changed when a count of the counter circuit reaches a predetermined count level, the predetermined count level indicating that the current condition of the equalized signal is the persistent condition.

17. (Original) An apparatus as in Claim 16, wherein the equalizer setting circuit is arranged to produce at least one of an amplitude adjustment setting and an equalizer adjustment setting, wherein the amplitude adjustment setting is effective to control the peak level signal, and the equalizer adjustment setting is effective to control the characteristic of the equalizer circuit.

18. (Original) An apparatus as in Claim 16, wherein the state logic circuit is arranged to increment the count of the counter circuit when the current condition is the same as a previous condition, and the state logic circuit is arranged to reset the count of the counter circuit when the current condition is an opposite condition to the previous condition.

19. (Original) An apparatus as in Claim 18, wherein the state logic circuit is arranged to reset the count of the counter circuit when the current condition is different from both the opposite condition and the previous condition.

20. (Currently Amended) An apparatus as in Claim 1, further comprising ~~wherein the sampling circuit includes~~ a timing delay circuit that produces a first timing signal and a second timing signal, and wherein the sampling circuit produces the sampled data points in response to the first timing signal, the second timing signal and the output of the comparator circuit, wherein the first timing

signal is a ~~first~~ logic pulse that is responsive to rising and falling edges of the data signal, and the second timing signal is another logic pulse that occurs a predetermined time delay after one of the rising and falling edges of the data signal such that the logic pulse and the another logic pulse occur within the pulse-width of the input signal.

21. (Currently Amended) An apparatus as in Claim 20, wherein the comparator circuit includes a reset control input that is coupled to the first timing signal such that the output of the comparator circuit is periodically reset to a first logic level, and the output of the comparator circuit indicates a second logic level that is different from the first logic level when the equalized signal exceeds the peak level signal.

22. (Currently Amended) An apparatus as in Claim 21, wherein the ~~digital control logic~~ sampling circuit ~~further~~ comprising:

a first logic circuit that includes a first output signal that is periodically reset to the first logic level in response to the second timing signal, the first output signal indicating the second logic level when the output of the comparator circuit changes from the first logic level to the second logic level;

a second logic circuit that includes a second output signal that follows the first output signal in response to the first timing signal;

a third logic circuit that includes a third output signal that follows the second output signal in response to the second timing signal, wherein the third output signal corresponds to a first of the sampled data points; and

a fourth logic circuit that includes a fourth output signal that follows the output of the comparator circuit in response to the second timing signal, wherein the fourth output signal corresponds to a second of the sampled data points.

23. (Original) A method for equalizing an input signal ~~that~~ with an equalizer, wherein the input signal has a pulse-width defined between a first edge and a second edge, comprising:

equalizing the input signal to produce an equalized signal;

comparing the equalized signal to a peak level to produce a comparator output;

sampling a first data point from the comparator output;

sampling a second data point from the comparator output, wherein the first and second data points correspond to sampled points that are within the pulse-width of the input signal;

analyzing the first and second data points to determine a condition of the equalized signal;

analyzing the condition of the equalized signal to determine when a persistent condition on the equalized signal exists; and

adjusting equalization settings of the equalizer in response to ~~a~~ the persistent condition, ~~that~~ when the persistent condition persists for a predetermined interval such that the input signal is properly equalized.

24. (Original) A method as in Claim 23, analyzing the first and second data points further comprising:

detecting an over-amplitude condition when the first and second data points indicate a first logic level;

detecting an under-amplitude condition when the first and second data points indicate a second logic level that is different from the first logic level;

detecting an over-shoot condition when the first data point indicates the first logic level and the second data point indicates the second logic level; and

detecting an under-shoot condition when the first data point indicates the second logic level and the second data point indicates the first logic level.

25. (Original) A method as in Claim 23, analyzing the condition of the equalized signal further comprising:

analyzing the first and second data points from a first sample time;

analyzing the first and second data points from a second sample time that is subsequent to the first sample time;

comparing the first data point from the first sample time to the first data point from the second sample time to produce a first point comparison; and

comparing the second data point from the first sample time to the second data point from the second sample time to produce a second point comparison.

26. (Original) A method as in Claim 25, further comprising:

increasing a persistence counter when the first point comparison and the second point comparison indicate that the first and second data points are unchanged ~~form~~ from the first sample time to the second sample time; and

resetting the persistence counter when at least one of the first point comparison and the second point comparison indicates that at least one of the first and second data points have changed ~~form~~ from the first sample time to the second sample time.

27. (Currently Amended) A method as in Claim 25, further comprising:

detecting an over-amplitude condition when the first and second data points indicate a first logic level;

detecting an under-amplitude condition when the first and second data points indicate a second logic level that is different from the first logic level, wherein the under-amplitude condition is an opposite condition to the over-amplitude condition;

detecting a first other condition when the first data point and the second data point ~~indicates~~ indicate the condition of the equalized signal is other than the over-amplitude condition and the under-amplitude condition; and

storing a first previous signal condition that corresponds to the condition of the equalized signal from the first sample time, wherein the first previous signal condition corresponds to one of the over-amplitude condition and the under-amplitude condition;

increasing a first persistence counter when the condition of the equalized signal from the second sample time corresponds to the first previous signal condition; and

resetting the first persistence counter when the condition of the equalized signal from the second sample time corresponds to the opposite condition to the first previous signal condition.

30. (Currently Amended) A method as in Claim 28 ~~27~~, further comprising resetting the second persistence counter when the condition of the equalized signal from the second sample time corresponds to the second other condition.

31. (Currently Amended) A method as in Claim 27, further comprising:

determining when the first persistence counter has reached a predetermined count level;

adjusting the equalization settings ~~setting~~ of the equalizer in response to a first type of persistent condition when the predetermined count level corresponds to a first predetermined interval;

adjusting the peak level in response to a second type of persistent condition when the predetermined count level corresponds to ~~the~~ a second predetermined interval; and

resetting the first persistence counter after completing the adjustments to at least one of the equalization settingsand the peak level, whereby the equalization of the input signal is adjusted by adjusting the peak level and the equalization level.

32. (Original) A method as in Claim 23, further comprising adjusting other equalization settings of another equalizer in response to the persistent condition wherein the equalization settings and the other equalization settings are the same such that an other input signal is equalized by the other equalizer similar to the input signal that is equalized by the equalizer.

33. (Currently Amended) An equalization system that includes a first sample point and a second sample point from an input signal that has a pulse-width defined between a first edge and a second edge, comprising:

a means for equalizing the input signal produces an equalized signal in response to the input signal and an equalization control signal;

a means for comparing produces a comparator output signal in response to a comparison between the equalized signal and a peak level signal;

a means for sampling samples the comparator output signal to produce the first sample point and the second sample point in response to the equalized signal and the comparator output signal, the first sample point corresponding to a sample of the comparator output signal after the first edge of the input signal, and the second sample point corresponding to another sample of the comparator output signal within the pulse-width of the input signal; and

a means for adjusting adjusts at least one of the peak level signal and the equalization control signal in response to the first sample point and the second sample point such that equalization of the input signal is adjusted.

34. (Original) An apparatus as in Claim 33, further comprising:

a means for analyzing determines a condition of the equalized signal by analyzing the first sample point and the second sample point; and

a means for determining persistence determines when the condition of the equalized signal becomes a persistent condition.

35. (Original) An apparatus as in Claim 33, wherein the condition is at least one of an over-amplitude condition, an under-amplitude condition, an over-shoot condition, and an under-shoot condition.

36. (Original) An apparatus as in Claim 33, wherein the condition of the equalized signal is persistent when the condition has continued for a predetermined number of consecutive occurrences.

37. (Currently Amended) An apparatus as in Claim 33, further comprising:

a means for increasing an equalization level adjusts the equalization control signal such that the equalization level is increased when an ~~the~~ under-shoot condition is persistent; and

a means for decreasing the equalization level adjusts the equalization control signal such that the equalization level is decreased when an ~~the~~ over-shoot condition is persistent.

38. (Currently Amended) An apparatus as in Claim 33, further comprising:

a means for increasing the peak level signal that increases the peak level signal when an ~~the~~ under-amplitude condition is persistent; and

a means for decreasing the peak level signal that decreases the peak level signal when an ~~the~~ over-amplitude condition is ~~the~~ persistent ~~condition~~.

39. (New) An equalization system that includes a first sample point and a second sample point from an input signal that has a pulse-width defined between a first edge and a second edge, comprising:

a means for equalizing the input signal produces an equalized signal in response to the input signal and an equalization control signal;

a means for comparing produces a comparator output signal in response to a comparison between the equalized signal and a peak level signal;

a means for sampling samples the comparator output signal to produce the first sample point and the second sample point in response to the equalized signal and the comparator output signal, wherein the first sample point corresponding to a sample of the comparator output signal after the first edge of the input signal, and wherein the second sample point corresponding to another sample of the comparator output signal;

a means for evaluating the first sample point and the second sample point to identify a signal condition associated with the input signal;

a means for increasing the peak level signal when the signal condition corresponds to an under-amplitude condition; and

a means for decreasing the peak level signal when the signal condition corresponds to an over-amplitude condition.

40. (New) An equalization system that includes a first sample point and a second sample point from an input signal that has a pulse-width defined between a first edge and a second edge, comprising:

a means for equalizing the input signal produces an equalized signal in response to the input signal and an equalization control signal;

a means for comparing produces a comparator output signal in response to a comparison between the equalized signal and a peak level signal;

a means for sampling samples the comparator output signal to produce the first sample point and the second sample point in response to the equalized signal and the comparator output signal, wherein the first sample point corresponding to a sample of the comparator output signal after the first edge of the input signal, and wherein the second sample point corresponding to another sample of the comparator output signal;

a means for evaluating the first sample point and the second sample point to identify a signal condition associated with the input signal;

a means for increasing an equalization level adjusts the equalization control signal such that the equalization level is increased when the signal condition corresponds to a an under-shoot condition; and

a means for decreasing the equalization level adjusts the equalization control signal such that the equalization level is decreased when the signal condition corresponds to an over-shoot condition.